TAIPEI 台北時報 TIMES

BILINGUAL TIMES

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WEEKEND SCIENCE

WELCOME to Weekend Science! Every Saturday we're going to guide you through some cool experiments that you can do at home. It's a good idea for you to keep a record of what you do in a Science Journal. That way you can record what you learn, compare results and maybe use them to design new experiments! Remember to always ask a grown-up's permission before trying out an experiment.

歡迎閱讀《週末科學版》！我們每週六都要為你介紹可以在家中進行的有趣科學實驗。你可以在《科學日誌》中記錄自己做了哪些活動，這樣就可以將所學的記錄下來，比較這些結果，也許還可以利用它們來設計新的實驗！先看一下《科學日誌》的點子再開始吧。展開實驗之前，記得要獲得大人許可喔！

The magic ingredient
神奇的成分

A few weeks ago we did an experiment to investigate how bread goes moldy under different conditions. In today's experiment we will compare bread and cake to find out how they age. They are both flour-based foods, but they age very differently. Can you think what the main ingredient is that affects the aging process? Here's a clue: cake wouldn't be the same without it!

幾週前，我們做了一個實驗，探討麵包在不同條件下的發霉現象。今天的實驗中，我們將比較麵包和蛋糕，找出它們是如何變質的。這兩者皆是麵粉做的食物，但它們變質的條件卻大不相同。你想得出影響其變質過程的主要成分嗎？線索：蛋糕缺了它就不是蛋糕了！

What you will need: a loaf of bread and a slice of cake.

實驗所需：一片麵包和一塊蛋糕。

METHODOLOGY

Step 1: Cut a slice of bread from the loaf and put the rest of the bread back in the bread bin. Put the slice of cake on the plate next to the bread. You don't want other people inadvertently eating your materials, so make sure you clearly identify the plate as a science experiment.

Step 2: The point of the experiment is to see if the bread or cake goes stale first. The way to check is to prod the food and find out which one is hardest. There's no scientific way to do this, so you just have to use your judgment.

Step 3: After about 10 minutes prod the food and see if there has been any change. Come back after an hour and prod the food again. Finally come back again after about five hours and determine which one is stalest.

方法

步驟一：切一片麵包，把剩下的麵包放進麵包收納盒中。將這片麵包和一塊蛋糕放在一個盤子上。為了不讓別人誤食你的材料，務必清楚標明這個盤子是科學實驗的器材。

步驟二：這個實驗的重點在於檢視麵包和蛋糕哪個會先腐壞。測試方式就是戳一戳兩種食物，看哪一個最硬。這個步驟沒有科學方法，所以你只能利用你的判斷力。

步驟三：經過約十分鐘後，戳一戳兩種食物，並觀察它們是否有任何變化。一小時後再回來戳一次。約五小時後再回來做最後檢驗，確認何者腐壞情形最嚴重。

ANALYSIS
實驗分析

You should have found that the bread became stale much quicker than the cake. As you might have guessed from the clue, sugar is the ingredient that prolongs the aging process. This is because sugar is hygroscopic, which means it absorbs water from the air.

When the bread and cake are on the plate, moisture is constantly evaporating from them, causing staleness. The difference is that the sugar in the cake is also absorbing moisture from the air, thereby keeping the cake soft for longer.

(JOHN PHILLIPS, STAFF WRITER)

你應該發現麵包腐壞的速度比蛋糕快得多。你可能已經從線索裡猜到，能延緩食物變質過程的原料就是糖，理由是糖會吸濕，也就是說，它會吸收空氣中的水分。

當麵包和蛋糕被放在盤子上時，它們的水分會不斷揮發造成腐壞。而它們的差別就在於蛋糕中的糖份同時會吸收空氣中的水分，因此蛋糕能較長時間保持鬆軟。

（翻譯：袁星慶）

Extension: Repeat the experiment but use different cakes and identify which one has the most sugar.

延伸實驗：重複上述實驗，但這次改用不同種類的蛋糕，看看何者的糖份最多。

VOCABULARY
今日單字

1. **moldy** /' mold' / adj. 發霉的 (fa1 mei2 de5)
2. **slice** /sla' s/ n. 切片 (qie1 pian4)
3. **stale** /stel/ adj. 腐壞的 (fu3 huai4 de5)
4. **hygroscopic** /,ha' gr' ' sk' p' k/ adj. 吸濕的 (xi1 shi1 de5)
5. **moisture** /' m' ' s' ' / n. 水分 (shui3 fen4)
6. **absorb** /' b' s' rb/ v.i./v.t. 吸收 (xi1 shou1)

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Did you have fun with today's experiment? Why don't you e-mail us and let us know. We're always happy to hear from our readers!

喜歡今天的實驗嗎？歡迎來函指教！電子信箱：bilingual@taipeitimes.com